

On some distributional properties of Gibbs-type priors

Igor Pruenster, University of Torino & Collegio Carlo Alberto

Gibbs-type priors represent a natural (maybe the most natural?) generalization of the Dirichlet process and can be intuitively characterized in terms of their predictive structure. This talk will deal with some of their distributional properties and highlight the corresponding implications in terms of Bayesian nonparametric modeling. In particular focus will be on: (i) the distribution of the number of partition blocks, which can be interpreted as the number of components in a hierarchical mixture model for density estimation; (ii) Bayesian nonparametric estimators of the discovery probability for species sampling problems that are compared with their respective frequentist counterparts; (iii) frequentist asymptotic validation that shows that Gibbs-type priors are typically consistent for models they are designed for.